

Technical Report

Report No	R18965 – Rev 3
Product Tested:	Ultimate Range Composite Door Duraflex Composite door with side Light Open In
Test Conducted for:	Sliders UK Unit 232, Oldfield Road Walton Summit Bamber Bridge PR5 8BG
Standard Specified:	PAS 24:2016 – Enhanced security performance requirements for doorsets and windows in the UK
Project No:	18965
Date of Test:	21 st February & 16 th March 2018
Test Conducted at:	Wintech Engineering Limited Halesfield 2 Telford Shropshire TF7 4QH
Test Conducted by:	D Adams Senior Laboratory Engineer D Knight Laboratory Technician S Tawn Laboratory Apprentice
Report Compiled by:	S Ward Laboratory Apprentice
Authorised by:	M Witkowska Quality Engineer 

Revision 3 – This report has been amended to include a changed drawing in section 7 and replaces the previous report number R18965 – Rev 2 dated 17th May 2018.

This report is copyright and contains 17 numbered pages

REPRODUCTION OF THIS DOCUMENT IN WHOLE OR ANY PART THEREOF MUST NOT BE MADE WITHOUT PRIOR WRITTEN PERMISSION FROM WINTECH ENGINEERING LTD.

This report and the results shown within are based upon the information, drawings, samples and tests referred to in the report. The results obtained do not necessarily relate to samples from the production line of the above named company and in no way constitute any form of representation or warranty as to the performance or quality of any products supplied or to be supplied by them. Wintech Engineering Ltd or its employees accept no liability for any damages, charges, cost or expenses in respect of or in relation to any damage to any property or other loss whatsoever arising either directly or indirectly from the use of the report.

Contents

	Page No.
1. Introduction	3
2. Summary of Test Results	3
3. Description of Test Sample	4
4. Test Arrangement	7
5. Test Procedures	8
6. Test Results	10
7. System Drawings	14

1. Introduction

This report describes testing of a door sample conducted at the test laboratory of Wintech Engineering Ltd on behalf of Sliders UK in order to determine compliance with PAS 24:2016.

Wintech Engineering Ltd is accredited by the United Kingdom Accreditation Service as UKAS Testing Laboratory No. 2223

2. Summary of Results

The following summarises the results of testing carried out, in accordance with PAS 24:2016

Test Description	Result
Annex A – Security hardware and cylinder test	Pass
B.4.6 - Manual check test	Pass
B.4.4.3 - Infill – mechanical test	Pass
B.4.3 - Manipulation test (a)	Pass
B.4.4.4 - Manual cutting test	Pass
B.4.5 - Mechanical loading test	Pass
B.4.4.2 - Infill – manual test	Pass
B.4.8 - Soft body impact test	Pass
B.4.9 - Hard body impact test	Pass
Overall Classification in accordance with PAS 24:2016	D

More comprehensive details are reported in Section 6.

Note: These results are valid only for the conditions under which the test was conducted

Note: All measurement devices, instruments and other relevant equipment were calibrated and traceable to National Standards.

3. Description of Test Sample

Product range name:	Ultimate Range Composite Door
Configuration:	Duraflex Composite door with side Light
Opening direction:	In

Outer Frame

Applies to both Frames

Outer frame width:	1018mm (1525mm)	Outer frame material:	PVC
Outer frame height:	2086	Outer frame gasket	Q Lon
Outer frame Part Numbers	Door Frame / Sidelight	Gasket type:	Q Lon (supplied in frame)
Top:	7504 7502	Manufacturer:	Duraflex
Bottom:	Exitex 15/67 7502	Product name:	N/A
Lock side:	7504 7502	Product code:	N/A
Hinge side:	7504 7502	Threshold	
Outer frame section size		Manufacturer:	Exitex
Width:	68mm 68mm	Product name:	
Depth:	70mm 70mm	Product code:	Exitex 15/67
Reinforcing:		Material:	
Manufacturer:	Duraflex Duraflex	Outer frame joint method	
Product name:	-	Head:	Welded
Product code:	3810 3569	Foot:	Ali Threshold Mechanical Join
Material:	Steel Steel		

Leaf

Sidelight Couple - Aluminium Manufacturer - Duraflex Product code -3549 PVC coverstrip -3038

Leaf width:	898mm	Leaf material:	Composite GRP
Leaf height:	2013mm	Leaf gasket	
Leaf Part Numbers		Gasket type:	N/A
Top:	N/A	Manufacturer:	N/A
Bottom:	N/A	Product name:	N/A
Lock side:	N/A	Product code:	N/A
Hinge side:	N/A	Leaf midrail:	
Leaf section size		Manufacturer:	N/A
Width:	N/A	Product name:	N/A
Depth:	44mm	Product code:	N/A
Reinforcing:		Material:	
Manufacturer:	N/A	Leaf joint method	
Product name:	N/A	Head:	N/A
Product code:	N/A	Foot:	N/A
Material:	N/A		

Glazing

Glass unit		Glazing gasket	
Manufacturer:	Clayton Glass	Gasket type:	Co ex
Inner thickness:	4mm	Manufacturer:	Duraflex
Spacer material:	Aluminium	Product name:	Q-Lon

Outer thickness:	4mm	Product code:	N/A
Unit sizes:	24mm door Sidelight 28mm	Glazing clip	
Bead		Manufacturer:	
Manufacturer:	Duraflex	Product name:	
Product name:		Product code:	
Product code:		Glazing tape details	
Bead size:	28mm	Manufacturer:	N/A
Bead material:	PVC	Product name:	N/A
		Product code:	N/A

Hardware

	Manufacturer:	Product description:	Product code:	Quantity:
Hinges:	Ingenious Locks and Hardware	2D composite door hinge	3101	3
Hinge fixing:	Rapier Star	4.8 x 50mm Self Tapping	CPF 5.0 * 50Z	3 per hinge
Hinge protectors:	Ingenious Locks and Hardware	2D hinge Dog Bolt & Keep	3103	3
Hinge protector fixings:	Rapierstar	3.9 x 38 mm Self Tapping	CSR 3.9*38Z	2 per protector
Door lock:	Ingenious Locks and Hardware	Duplex 5 hook Radius end 45mm Backset Composite door lock	1009	8
Door lock fixings:				
Cylinder:	Ingenious Locks and Hardware	3* Cylinder	6005-3535N	1
Cylinder fixing:	Ingenious Locks and Hardware	5 x 50mm M5 screw	6005-3535N	1
Handle:	Trojan	L/L White door handle	DD-0750-2001 - all colours	1
Handle fixings:	Trojan	M5 x 55mm threaded screw	DD-0750-2001	2
Touch Bar	N/A			
Cylinder Support	N/A			
Cylinder Escutcheon	N/A			
Keeps:	Ingenious Locks and hardware	Duplex composite door keeps	1141-LH CENTRE 1141-RH CENTRE 1143 HOOK KEEP	1 1 2
Keep fixings:	Rapier Star	4.8 x 38mm Self tapping Screw	CSR 4.8*38Z	2 per hook keep 3 per centre keep
Drip bar:	Exitex	Drip Bar		1
Drip bar fixings:				
Additional Hardware:	Trojan	TS008 letterbox	0793-2003 WH	1

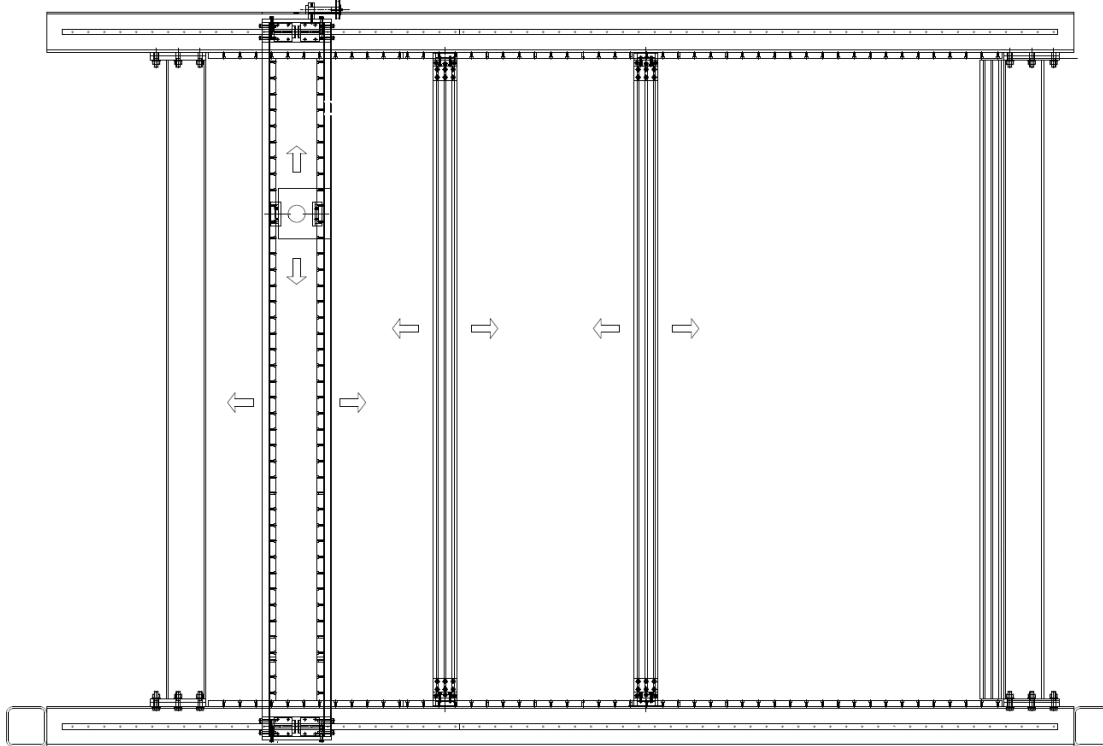
The details shown in Section 3 and drawings shown in Section 7 have been supplied by and confirmed as typical of normal production by Sliders UK and have not been verified by Wintech Engineering Limited.

4. Test Arrangement

4.1 Test Rig

The test sample was supplied mounted in 100 x 75 mm sub-frame in accordance with manufacturer's installation requirements. It was fitted into the test rig, shown below which was constructed to meet the requirements of the test specification and was fitted plumb, square and without twist or bends.

Figure 1 – Test rig used for testing



5. Test Procedures

5.1 Annex A – Security hardware and cylinder test

The objective of this test was to assess the lock and cylinder and its resistance to manual attack when using Tools group A, Tools group B and Tools group C of PAS 24:2016. The test was broken in to 2 parts as follows:

Part 1 – the hardware was attacked for a total of 3 minutes which consisted of the following activities

- i. Attempts to remove, dislodge or otherwise gain access to the cylinder and lock by attacking any protective item
- ii. Attempts to break or defeat the cylinder by applying a twisting or bending force
- iii. Attempts to operate any accessible mechanism in order to gain entry

Part 2 – the hardware was attacked for a total of 3 minutes which consisted of the following activities

- i. Attempts to remove, dislodge or otherwise gain access to the cylinder and lock by attacking any protective item
- ii. Attempts to screw self-cutting screws in to the exposed part of the cylinder in order to provide a suitable fixing force for activity iii.
- iii. Attempts to break and defeat the cylinder by applying a nominally axial force to the screw using a hooked head crowbar attachment
- iv. Attempts to operate any accessible mechanism in order to gain entry

5.2 Manual check test – determine additional mechanical loading

The objective of the manual check test is to explore the possibility that there might be weaknesses and vulnerabilities in the product that are not covered in the standard cases.

The objective of this test was to assess any vulnerabilities of the sample that are not covered by the standard loading cases assessed in the mechanical loading test B.4.5. The tools described in Section B.4.6.2 of PAS 24:2016 were used for a maximum period of 15 minutes in an attempt to gain entry through the sample. No single location was tested for more than 6 minutes with no single attack technique being used for more than 3 minutes.

5.3 Infill – Mechanical test

The objective of this test was to assess the ability of the infill to withstand a specified sequence of loading without gaining entry through the sample. The loads and loading sequence were in accordance with Section B.4.4.3 of PAS 24:2016.

5.4 Manipulation test (a)

The objective of this test was to highlight any inherent vulnerability in the design of the door which, from the outside, would permit entry by the hardware being operated, released or disengaged when tested using all of Tools group A from Section A.2.1 of PAS 24:2016 and, where applicable, tools specified in A.2.2.3, A.2.2.5 and A.2.2.6 in Tools group B from Section A.2.2 of PAS 24:2016. The overall attack time was limited to 15 minutes with no single test technique being used for more than 3 minutes.

5.5 Manual cutting test

The objective of this test was to cut an aperture in the infill or fabric of the door leaf in order to gain entry using the tools described in section A.2.1.3, A.2.1.4, A.2.2.1 and A.2.2.2. Two tests were conducted; one in Zone 1 and a second in Zone 2. The overall attack time for each test was 3 minutes.

Zone 1 is a horizontal band with an upper limit 400 mm (+0 mm / -10 mm) above the centre of rotation of the upper hardware unlocking point and a lower limit 400 mm (+0 mm / -10 mm) below the centre of the rotation of the lower unlocking point as shown below. In the case of a single hardware unlocking

point zone 1 is a horizontal band with limits 400 mm (+0 mm / -10 mm) above and below the centre of rotation of the hardware unlocking point. Zone 2 covers any point of the doorset not in zone 1.

5.6 Mechanical loading test

The objective of this test was to assess the ability of the sample to withstand a specified sequence of loading without gaining entry through the sample. The loads and loading sequence were in accordance with Section B.4.5 of PAS 24:2016.

5.7 Infill – Manual test

The objective of this test was to attempt to remove gaskets, beads, security devices (if applicable) and the infill, using Tools group A and Tools group B described in section A.2.1 & A.2.2 of PAS 24:2016 for a maximum period of 3 minutes.

5.8 Soft body impact test

The objective of this test was to assess the ability of the sample to resist impacts using a soft body impactor as shown in Figure B.11 of PAS 24:2016 and at various impact locations specified in Section B.4.8.2 of PAS 24:2016.

5.9 Hard body impact test

The objective of this test was to assess the hardware, infill medium and its retention system to hard body impacts using the impactor as shown in Figure B.12 of PAS 24:2016. Impacts were conducted at various locations specified in Section B.4.9.2 of PAS 24:2016.

6. Test Results

6.1 Laboratory Conditions

Prior to the start of the test, the laboratory conditions were measured as follows:

Temperature (°C)	18.3
Humidity (% RH)	38.3

Note The test samples were stored in a non-destructive environment at a temperature of 15 – 30°C and a r.h. of 25 – 75 % for a minimum of 12 hours, testing was also conducted at those conditions. Prior to testing, the door was closed and locked from the outside and any keys were removed.

6.2 Security Hardware & Cylinder Test

Attempts were made from the external face to operate, release and disengage the security hardware in order to gain entry through the sample in accordance with Section A.3 of PAS 24:2016.

No entry was be gained during this test.

6.3 Manual check test

Attempts were made from the external face to gain entry through the sample by applying load combinations not covered by the standard loading cases for the mechanical loading test. The overall attack time was limited to 15 minutes with no single attack technique being used for more than 3 minutes and no single location being attacked for more than 6 minutes.

No entry was be gained during this test.

6.4 Infill – Mechanical test

A series of loads were applied to the external face of the infill as defined in Section B.4.4.3 of PAS 24:2016. A perpendicular-to-plane load of 2.0kN was applied and held for 8-12 seconds at each corner of the infill.

No entry was be gained during this test.

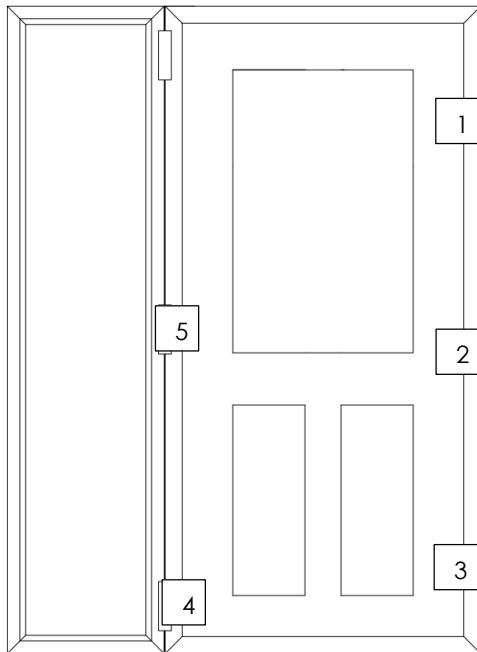
6.5 Manipulation test (a)

Attempts were made from the external face to operate, release and disengage the system hardware in order to gain entry through the sample in accordance with Section B.4.3 of PAS 24:2016. The results are as follows:

Table 1 – Manipulation test (a)

Location	Tools Used	Method	Time
1 - Double hook	X2 paint scrapers	Used x2 paint scrapers in attempt to manipulate double hook, no entry gained.	03:00
2 - Latch/single hook	X2 paint scrapers	Used x2 paint scrapers in attempt to manipulate hook and latch, no entry gained.	03:00
3 - Double hook	X2 paint scrapers	Used x2 paint scrapers in attempt to manipulate double hook, no entry gained.	03:00
4 - Hinge/dogbolt	X2 paint scrapers	Used x2 paint scrapers in attempt to manipulate hinge and dogbolt, no entry gained.	03:00
5 -Hinge/dogbolt	X2 paint scrapers	Used x2 paint scrapers in attempt to manipulate hinge and dogbolt, no entry gained.	03:00

Figure 2 – Attack locations



6.6 B.4.4.4 – Manual cutting test

Attempts were made from the external face to cut an aperture in the infill or fabric of the door leaf in order to gain access using tools as described in section A.2.1.3, A.2.1.4, A.2.2.1 and A.2.2.2 of PAS 24:2016. Two 3 minutes tests were carried out; one in Zone 1 and one in Zone 2 as defined in Section B.4.4.4 of PAS 24:2016.

No entry was gained during this test.

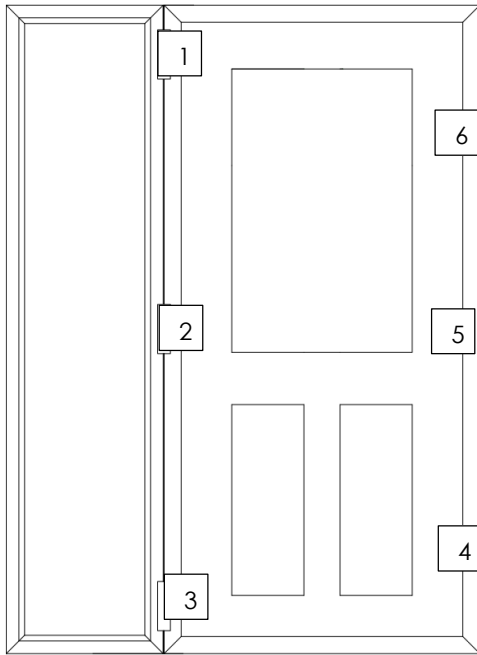
6.7 B.4.5 – Mechanical loading test

A series of loads were applied to the internal face of the sample as defined in Section B.4.5 of PAS 24:2016. The loading combinations used were as defined in Table B.1 to Table B.6 of PAS 24:2016 for the applicable door type and as shown in Table 2. The results are as follows:

Table 2 – Mechanical Loading

Loading Point	Parallel-to-plane Load		Perpendicular-to-plane Load		Result
	Load	Direction	Load	Direction	
1 – Hinge/dog bolt	1.5 kN	↔	4.5 kN	-	Pass
2 – Hinge/dog bolt	1.5 kN	↔	4.5 kN	-	Pass
3 – Hinge/dog bolt	1.5 kN	↔	4.5 kN	-	Pass
4 – Double Hook bolt	1.5 kN	↑	4.5 kN	-	Pass
4 – Double Hook bolt	1.5 kN	↓	4.5 kN	-	Pass
4 – Double Hook bolt	1.5 kN	←	4.5 kN	-	Pass
5 – Hook/latch	1.5 kN	↑	4.5 kN	-	Pass
5 – Hook/latch	1.5 kN	←	4.5 kN	-	Pass
6 – Double Hook bolt	1.5 kN	↑	4.5 kN	-	Pass
6 – Double Hook bolt	1.5 kN	↓	4.5 kN	-	Pass
6 – Double Hook bolt	1.5 kN	←	4.5 kN	-	Pass

Figure 3 – Loading points



6.8 B.4.4.2 – Infill manual test

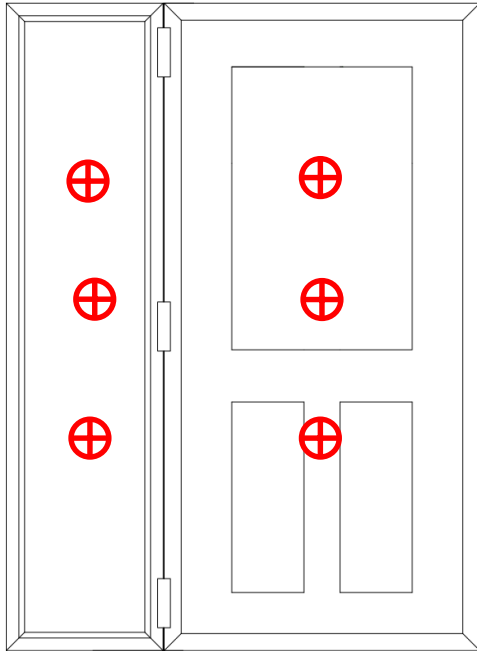
Attempts were made from the external face to remove gaskets and beading in order to gain access to and remove the infill using tools A.2.1 & A.2.2 in accordance with Section B.4.4.2 of PAS 24:2016.

No entry was gained during this test.

6.9 B.4.8 – Soft body impact test

The test sample was subject to soft body impacts on the external face as shown in Figure 4. Each of the locations was subject to 3 impacts from a drop height of 800mm, following which no damage was observed.

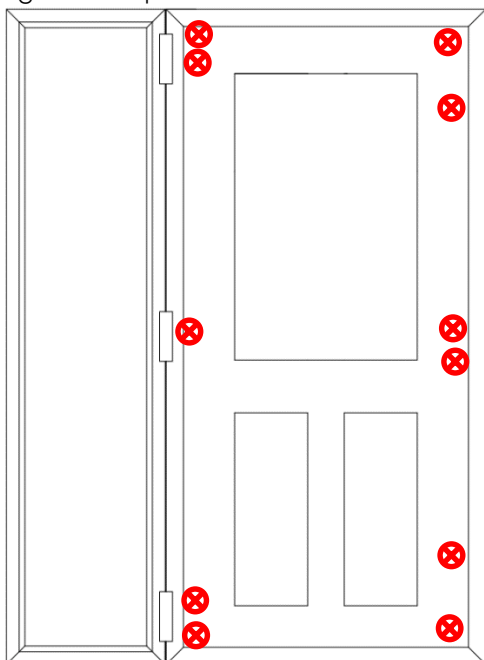
Figure 4 – Impact locations



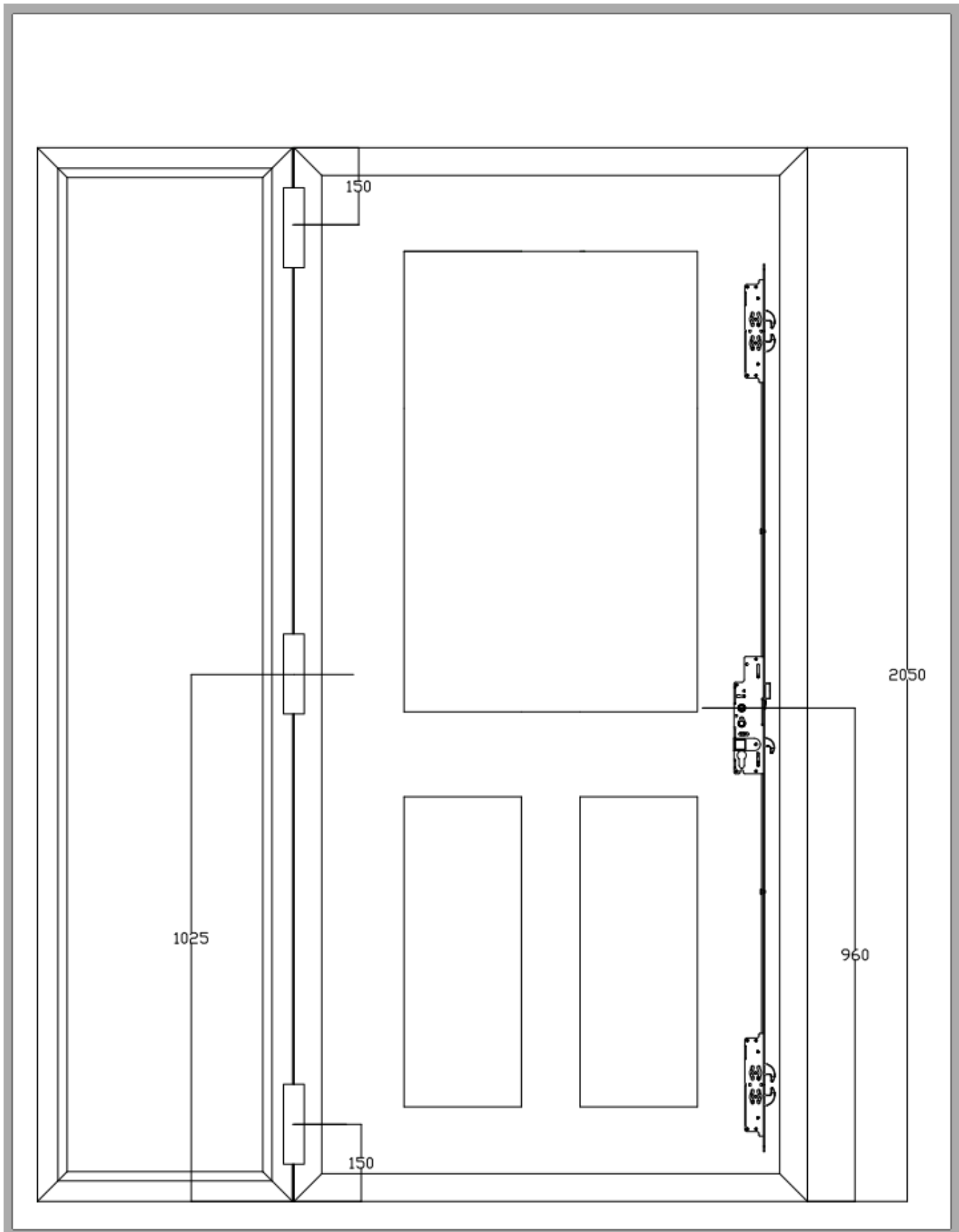
6.10 B.4.9 – Hard body impact test

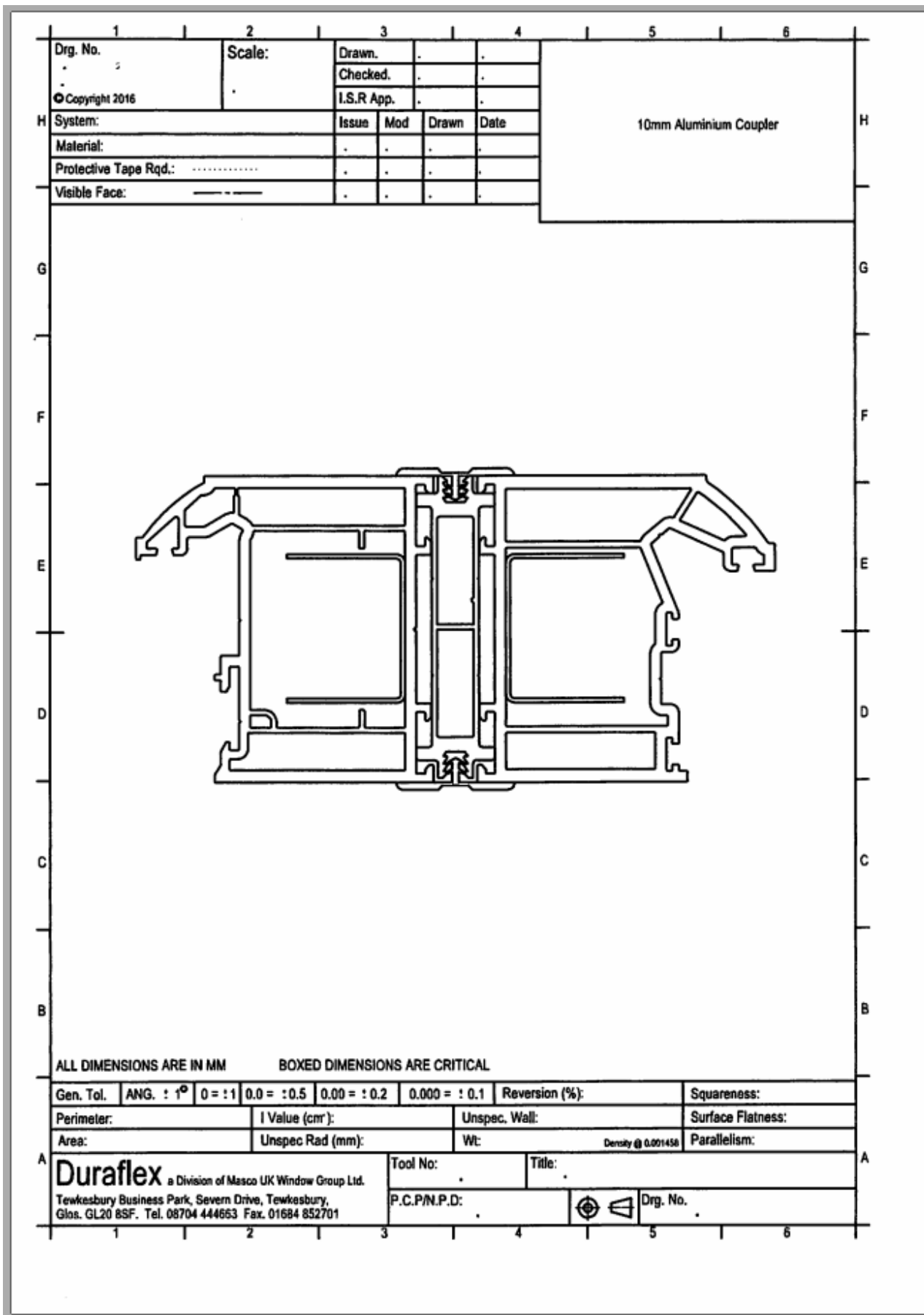
The test sample was subject to hard body impacts on the external face as shown in Figure 5. Each of the impact locations was subject to 3 impacts from a drop height of 165 mm following which no entry was gained through the sample.

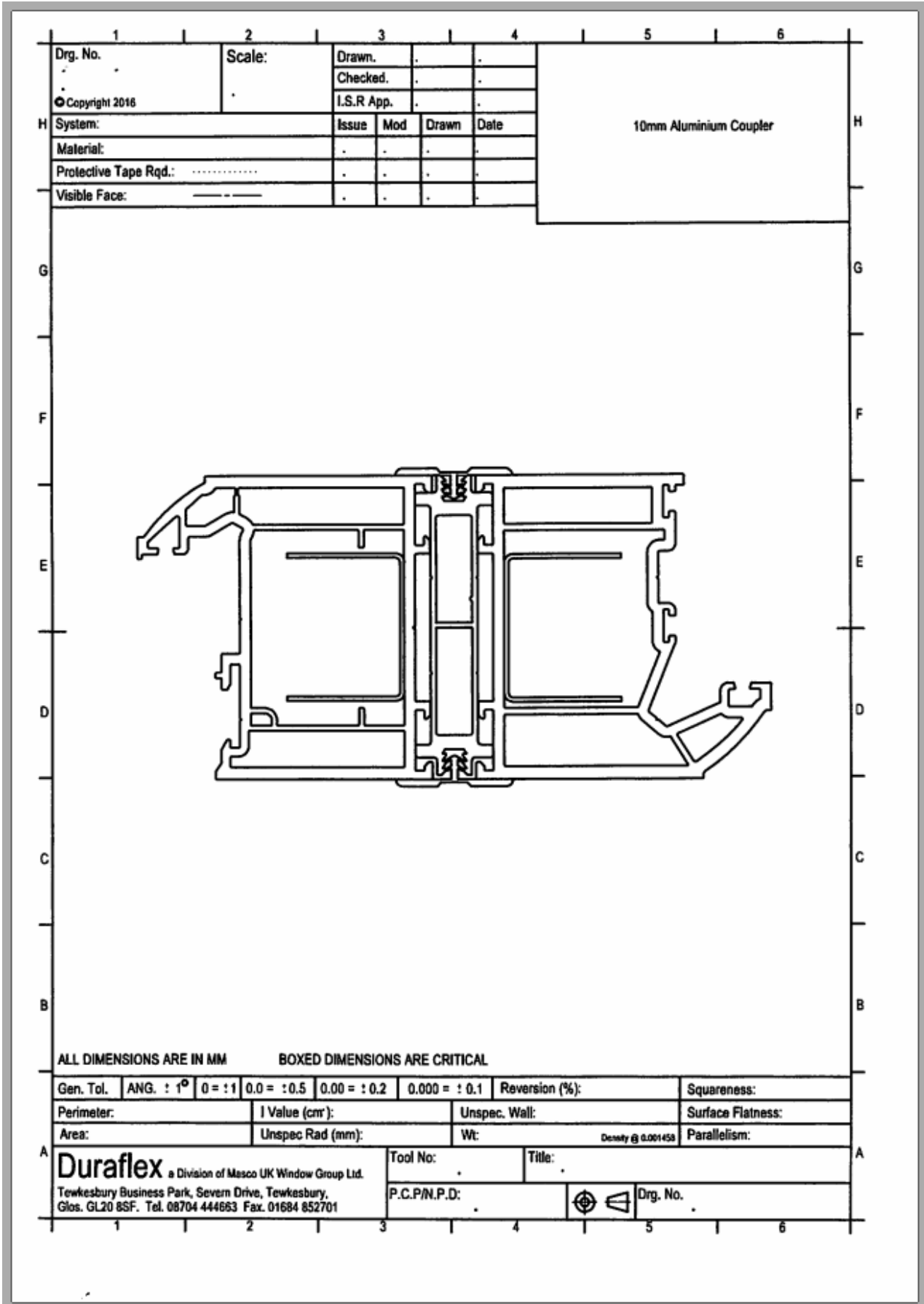
Figure 5 – Impact locations

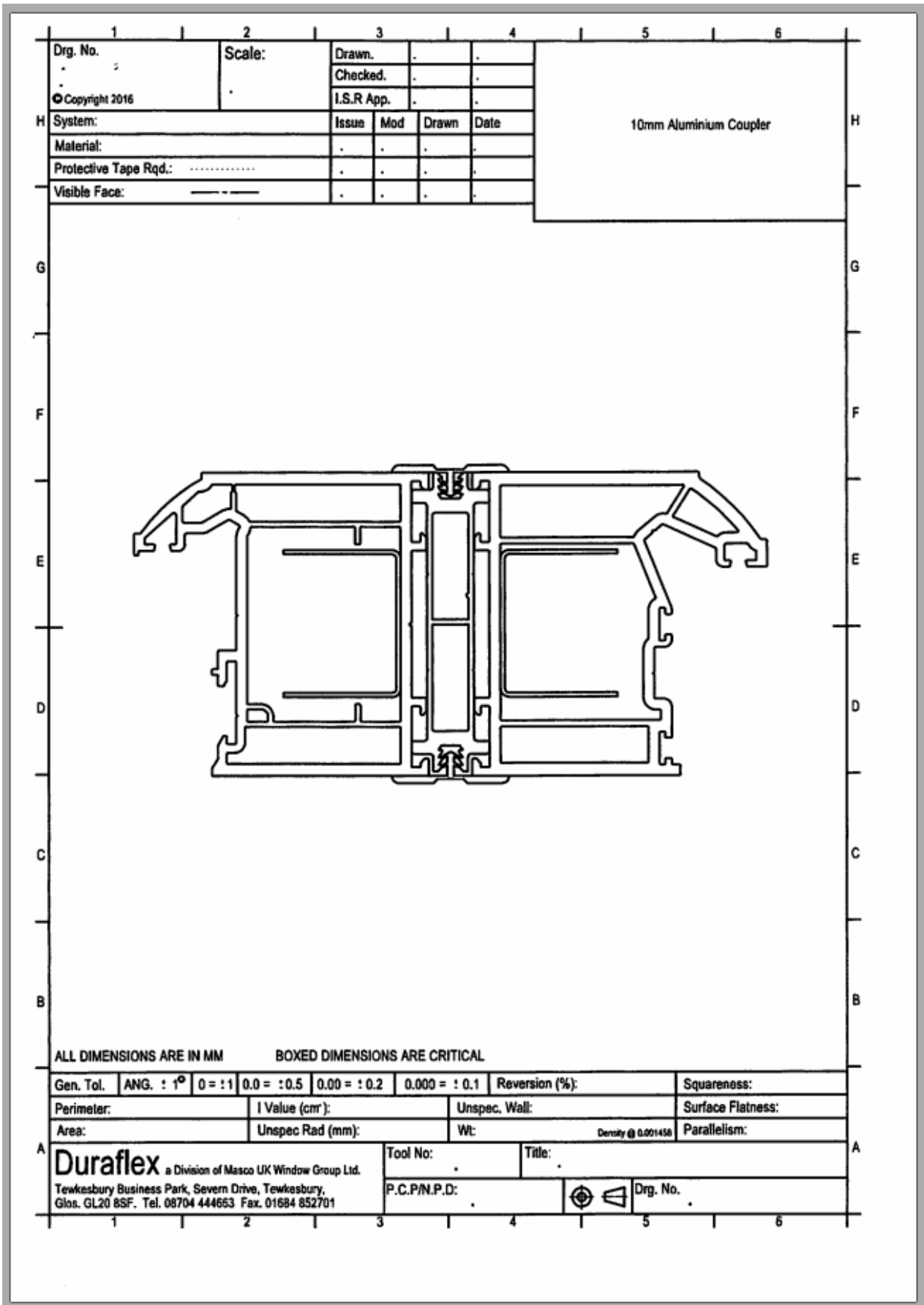


7. System Drawings









+++ -- End of Report -- +++